

MASS FLOW CONTROLLER AND METHOD OF OPERATION OF MASS
FLOW CONTROLLER

5

Rajinder S. Gill

ABSTRACT

A mass flow controller has a sensor section that generates an electrical signal, dependent on the measured flow rate. The controller sends a control signal to a magnetic field generating unit, dependent upon the actual flow rate and the desired flow rate, which in response, generates a magnetic flux in the direction of the fluid input to the fluid output through the body of the controller. This means that the magnetic flux is concurrent with the fluid flow within the mass flow controller body. The magnetic flux alters the position of a plunger button assembly, located between the bypass chamber and the fluid output, relative to an orifice plate to control the flow rate to obtain the desired output flow. By incorporating the proportional control valve within the mass flow controller body, the need for a separate and large valve section is eliminated, reducing the size and cost of the controller.